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10/693,958

10/28/2003

Hayato Nakanishi

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EXAMINER

BODDIE, WILLIAM

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2629

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/693,958	Applicant(s) NAKANISHI, HAYATO	
	Examiner WILLIAM L. BODDIE	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7,9,11-13,15 and 17-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9, 11-13, 15 and 17-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. In an amendment dated, December 15th, 2008, the Applicant amended claims 1-7, 9, 11-13, 15 and 17-20. Currently claims 1-7, 9, 11-13, 15 and 17-22 are pending.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 15th, 2008 has been entered.

Response to Arguments

3. Applicant's arguments with respect to claims 1-7, 9, 11-13, 15 and 17-22 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

4. Claims 1-3, 5-6, 12, 18-22 are objected to.

Claims 1-3 and 5-6 each contain the following informalities:

- the phrase "as well as reading test signal", at the bottom of page 3, for example is incorrect grammatically
- the phrases "the first precharge line" and "the third precharge line", on lines 3 and 9 of page 4, for example appear to have been intended to read "the first color test and precharge line" and "the third color test and precharge line."

Claim 5 contains the following informality: line 4 of page 12 ends in a period yet more claim limitations appear thereafter. This appears to have been a typo and the period was intended to be a comma.

Claim 12 contains the following informality: the phrase "the test lines" appears to have been intended to read "each color test and precharge line."

Claims 18-22 each contain the following informality: the phrase "wherein each shared line" appears to have been intended to read 'each color test and precharge line.'

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 4 recites the limitation "the second switches" in line 4. There is insufficient antecedent basis for this limitation in the claim.

Claims 5-6 each recite the limitations "the first switches" "the data lines" "the second switches in the method set of limitations. There is insufficient antecedent basis for these limitations in the claim.

Claims 9, 11, 13, 15, 17 each recite the limitation "the first switches" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1-4, 7, 9, 11-13 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rutherford (US 6,861,810) in view of Washio et al. (US 6,618,043) and further in view of Tobita et al. (US 7,006,067).

With respect to claims 1 and 3, Rutherford discloses, an organic electroluminescent display (fig. 2) comprising:

a plurality of pixel circuits (42 in fig. 2) comprising:

a first/second/third color pixel circuit having a first/second/third organic electroluminescent element emitting a first/second/third color (fig. 11),

a plurality of data lines comprising:

a first/second/third color data line connected to the first/second/third color pixel circuit (col. 2, lines 66-67),

a plurality of precharge voltage generating circuits comprising:

a first/second/third color precharge voltage generating circuit supplying a precharge voltage to the first/second/third color data line (col. 6, lines 7-27).

Rutherford does not expressly disclose a plurality of test and precharge lines, a first/second/third color switch, nor a shift register comprising a plurality of latch circuits.

Washio discloses a first/second/third color switch (15 in fig. 4) controlling a supply of the precharge voltage from the first/second/third color test and precharge line (PCV in fig. 4) to the first/second/third color data line (SL1-x in fig. 4),

a shift register (12-13 in fig. 4) comprising a plurality of latch circuits (13 in fig. 4) wherein,

each of the latch circuits is provided corresponding to the first color switch, the second color switch and the third color switch (fig. 4),

the first color switch, the second color switch and the third color switch are controlled by a single output from the corresponding latch circuit (fig. 4).

Washio and Rutherford are analogous art because they are both from the same field of endeavor namely precharging control circuitry for flat panel displays.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the color switches and shift registers of Washio for each color subpixel in the device of Rutherford for the benefit of preventing the transfer of a great quantity of charges at once (Washio; col. 3, lines 39-42).

Neither Rutherford nor Washio expressly disclose a plurality of first/second/third color test and precharge lines, both supply of precharge voltage and output of a test signal along the same line.

Tobita discloses, a plurality of test and precharge lines comprising:

at least two first/second/third color test and precharge lines (CL and CR in fig. 2) connected to at least two of the first/second/third data lines (DL1 and DR1 in fig. 2)),

a switch (IG1 in fig. 2) controlling a supply of a precharge voltage (PEQ in fig. 2) from a test and precharge line (CL and CR in fig. 2) to a data line (DL1, DR1 in fig. 2) and output of a test signal (SA in fig. 2) from the data line to the precharge line.

Tobita, Washio and Rutherford are analogous art because they are both from the same field of endeavor namely precharging control circuitry for flat panel displays.

At the time of the invention it would have been obvious to one of ordinary skill in the art to wire each colored subpixel of Washio and Rutherford as taught by Tobita.

The motivation for doing so would have been for the well-known benefit of reducing the amount of wiring thereby lessening manufacturing costs as well as simplifying circuitry.

With respect to claim 2, upon review it appears that the only difference between claims 1 and 2 is the use of the phrase "color input and output line" in claim 2 instead of the phrase "test and precharge line" used in claim 1. Such a phrase difference is seen as being insufficient to overcome the rejection cited in claim 1.

With respect to claim 4, Rutherford, Washio and Tobita disclose, the organic electroluminescent display according to claim 3 (see above).

Rutherford, when combined with Washio and Tobita, further discloses, a data line selection circuit (Washio; 11 in fig. 4) to control precharge signals output from the at least 2 data lines to the test lines by sequentially operating the 2nd switches (Washio; col. 5, lines 55-65).

With respect to claim 7, Tobita, Washio and Rutherford disclose the organic electroluminescent display according to claim 1 (see above).

Rutherford further discloses, an electronic apparatus (fig. 2).

With respect to claims 9, 11 and 13, Tobita, Washio and Rutherford disclose the organic electroluminescent display according to claims 1-3 (see above).

Rutherford further discloses, supplying at least three precharge signals, one each selected for red, green, and blue pixel circuits (col. 6, lines 7-27).

With respect to claim 12, Tobita, Washio and Rutherford disclose, the organic electroluminescent display of claim 3 (see above).

Tobita further discloses, wherein test lines (CL, CR in fig. 2; SA) are shared with a precharge signal supply line (CL, CR in fig. 2; PEQ).

With respect to claims 18-20, Tobita, Washio and Rutherford disclose, electroluminescent display of claims 1-3 (see above).

Rutherford, when combined with Tobita and Washio, further discloses, wherein each shared line extends from at least the connection with the at least one data line at the first and second switches along one line to third switches (Tobita; 30-34 in fig. 2), wherein the third switches control the supply of the precharge signal from the precharge signal-generating circuit to the shared line (Tobita; 34 in fig. 2) and controls the output of the detection signal (Tobita; 30-33 in fig. 2).

8. Claims 5, 6, 15, 17 and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rutherford (US 6,861,810) in view of Washio et al. (US 6,618,043) and further in view of Tobita et al. (US 7,006,067) and LeChevalier-130 (US 7,079,130).

With respect to claims 5 and 6, Rutherford discloses, an organic electroluminescent display (fig. 2) comprising:

a plurality of pixel circuits (42 in fig. 2) comprising:

a first/second/third color pixel circuit having a first/second/third organic electroluminescent element emitting a first/second/third color (fig. 11),

a plurality of data lines comprising:

a first/second/third color data line connected to the first/second/third color pixel circuit (col. 2, lines 66-67),

a plurality of precharge voltage generating circuits comprising:

a first/second/third color precharge voltage generating circuit supplying a precharge voltage to the first/second/third color data line (col. 6, lines 7-27).

Rutherford does not expressly disclose a plurality of test and precharge lines, a first/second/third color switch, nor a shift register comprising a plurality of latch circuits.

Washio discloses a first/second/third color switch (15 in fig. 4) controlling a supply of the precharge voltage from the first/second/third color test and precharge line (PCV in fig. 4) to the first/second/third color data line (SL1-x in fig. 4),

a shift register (12-13 in fig. 4) comprising a plurality of latch circuits (13 in fig. 4) wherein,

each of the latch circuits is provided corresponding to the first color switch, the second color switch and the third color switch (fig. 4),

the first color switch, the second color switch and the third color switch are controlled by a single output from the corresponding latch circuit (fig. 4),

the method comprising:

supplying a precharge signal from a precharge signal supply line to the data lines through the first switches when one of the plurality of scanning lines is selected (fig. 27, for example); and

supplying data signals to electronic circuits connected to the selected scanning line through the data lines (fig. 27, for example).

Washio and Rutherford are analogous art because they are both from the same field of endeavor namely precharging control circuitry for flat panel displays.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the color switches and shift registers of Washio for each color subpixel in the device of Rutherford for the benefit of preventing the transfer of a great quantity of charges at once (Washio; col. 3, lines 39-42).

Neither Rutherford nor Washio expressly disclose both supply of precharge voltage and output of a test signal along the same line.

Tobita discloses, a plurality of test and precharge lines comprising:

at least two first/second/third color test and precharge lines (CL and CR in fig. 2) connected to at least two of the first/second/third data lines (DL1 and DR1 in fig. 2),
a switch (IG1 in fig. 2) controlling a supply of a precharge voltage (PEQ in fig. 2) from a test and precharge line (CL and CR in fig. 2) to a data line (DL1, DR1 in fig. 2) and output of a test signal (SA in fig. 2) from the data line to the precharge line.

Tobita, Washio and Rutherford are analogous art because they are both from the same field of endeavor namely precharging control circuitry for flat panel displays.

At the time of the invention it would have been obvious to one of ordinary skill in the art to wire each colored subpixel of Washio and Rutherford as taught by Tobita.

The motivation for doing so would have been for the well-known benefit of reducing the amount of wiring thereby lessening manufacturing costs as well as simplifying circuitry.

Neither Tobita, Washio nor Rutherford express disclose outputting data signals supplied to the data lines as detection signals to test lines.

LeChevalier-130 discloses, outputting data signals supplied to the data lines as detection signals to test lines through the second switches (col. 7, lines 58-67); and

using the detection signal for testing whether a sufficient data voltage has been written in the pixel circuit (col. 14, line 55 – col. 15, line 11).

LeChevalier-130, Tobita, Washio and Rutherford are analogous art because they are both from the same field of endeavor namely precharging control circuitry for flat panel displays.

At the time of the invention it would have been obvious to one of ordinary skill in the art to include the detection circuitry of LeChevalier-130 for each colored subpixel of the display device of Tobita, Washio and Rutherford.

The motivation for doing so would have been for power conservation and appropriate precharge voltage application (LeChevalier-130; col. 4, lines 9-18).

With respect to claims 15 and 17, Tobita, Washio, Rutherford and LeChevalier-130 disclose the organic electroluminescent display according to claims 5 and 6 (see above).

Rutherford further discloses, supplying at least three precharge signals, one each selected for red, green, and blue pixel circuits (col. 6, lines 7-27).

With respect to claims 21-22, Tobita, Washio, Rutherford and LeChevalier-130 disclose, electroluminescent display of claims 5-6 (see above).

Rutherford, when combined with Tobita, LeChevalier-130 and Washio, further discloses, wherein each shared line extends from at least the connection with the at least one data line at the first and second switches along one line to third switches (Tobita; 30-34 in fig. 2), wherein the third switches control the supply of the precharge signal from the precharge signal-generating circuit to the shared line (Tobita; 34 in fig. 2) and controls the output of the detection signal (Tobita; 30-33 in fig. 2).

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM L. BODDIE whose telephone number is (571)272-0666. The examiner can normally be reached on Monday through Friday, 7:30 - 4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on (571) 272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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/William L Boddie/
Examiner, Art Unit 2629
3/18/2009

/Sumati Lefkowitz/
Supervisory Patent Examiner, Art Unit 2629